DOCUMENT RESUME

ED 026 437

UD 007 760

Remediation and Rehabilitation in the Education of Disadvantaged Children (New York, February 6-7, 1967).
Yeshiva Univ., New York, N.Y. Ferkauf Graduate School of Humanities and Social Sciences.
Spons Agency-Office of Education (DHEW), Washington, D.C.
Pub Date Feb 67
Contract-OEC-6-10-243
Note-64p.
EDRS Price MF-$0.50 HC-$3.30
Descriptors-Behavior Change, Behavior Theories, Conference Reports, *Disadvantaged Youth, *Education, Educational Research, Exceptional Children, Handicapped Children, Learning Disabilities, Literature Reviews, *Rehabilitation, *Remedial Instruction, Socioeconomic Background, *Special Education
Identifiers-Lee Meyerson, William M Cruickshank

A report of a conference on the educational aspects of remediation and rehabilitation of disadvantaged children consists of two papers, a critical discussion of major presentation, and comments on it by participants. The paper by William M. Cruickshank, "Models from Special Education for Educational Research in Children with Learning Disabilities of Social and Economic Origin," reviews the research literature on exceptional children. The paper by Lee Meyerson, "Behavioral Modification Procedures," discusses three behavioral research strategies and their application to education. (NH)

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REMEDIATION AND REHABILITATION
IN THE
EDUCATION OF DISADVANTAGED CHILDREN *

February 6, 7, 1967
Holiday Inn
Queens, New York

UD 007 760

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* This Conference was held under the terms of U.S. Office of Education Contract #6-10-243 (Project on Stimulation and Development of Research Related to the Education of the Disadvantaged and/or Segregated). Dr. Edmund W. Gordon, Professor and Chairman of the Department of Educational Psychology and Guidance at Yeshiva University's Ferkauf Graduate School of Humanities and Social Sciences, was Project Director.

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A

MODELS FROM SPECIAL EDUCATION FOR EDUCATIONAL RESEARCH IN CHILDREN WITH LEARNING DISABILITIES OF SOCIAL AND ECONOMIC ORIGIN.

Dr. William M. Cruickshank

It is indeed logical to look to the field of special education for exceptional children regarding guidelines for research with children whose disabilities are of a social, ethnic, or economic origin. However, until the advent of federally-sponsored research support following World War II, special education per se had not produced the volume or quality of research which might have been expected of it. In fact, so much of the work in this field represents recent or contemporary action that it is still too early to determine clearly its implications for the disadvantaged. Still, a serious effort can be made to cull from special educational research those things which may have significance for the sister field.

Homogeneity or Hetrogeneity?

For many years in the education of mentally retarded children it was assumed that this population was homogeneous in nature. Consequently, classroom placement of these youngsters was determined only on the basis of intelligence level and chronological age without regard to their specific characteristics of learning.

It was Werner and Strauss(1) who first identified two categories of mentally retarded children whose educational needs were uniquely different. They termed these the endogenous and exogenous types. The endogenous mentally retarded child was one with familial tendencies towards retardation whose case history contained no evidence of either prenatal or postnatal neurological damage. This is the hereditary or genetic type of retardate. A child in the exogenous category, in contrast, had no evidence of the familial factor but whose history indicated birth injury, neurological signs, accident, or illness which might have contributed to his retardation.

Those same authors identified very different learning characteristics of these two types of children(2) , the substance of which will be described below. At this point, however, it can be said that generally what is done educationally for exogenous children is inappropriate for endogenous children and vice versa. It is generally agreed, although rarely implemented, that these two groups cannot be adequately educated in the same classroom.

It is important to keep this in mind when considering culturally disadvantaged children. Let us not view them as a homogeneous group lest we fall into the same trap as did the educators of retarded children. It will undoubtedly be found that there are among the culturally disadvantaged, as among retardates, endogenous and exogenous types requiring very different educational handling. For, the psychological characteristics of exogeny, originally believed to be restricted to retardation, may indeed be characteristic of some children at any point in the intellectual spectrum. The exogenous category of culturally disadvantaged youngsters, whom this writer predicts will be found to be the larger of the two types, will especially demand approaches now generally unfamiliar to most educators. Such children represent another type of the multipally handicapped.

Incidence and prevalence studies need to be undertaken to ascertain exactly what the educational problem may be from the point of view of psychopathology particularly as it is related to exogeny. Such studies will be a first step towards developing specific educational approaches for different types rather than fostering one overall attack on the educational problems inherent in this large and diverse group of children.

Neglect and Mental Retardation

Strauss and Werner also discussed a third group of mentally retarded children, i.e. the neglected(1). Such children's lifelong retardation can be attributed to their having lacked stimulation in infancy and early childhood. Their problems are related to those of the culturally deprived and disadvantaged child. Skodah, Skeels and Dye(3) , in their early studies of the effect of stimulation on the mental development of children, provide support to the clinical identification of the neglected child in the mentally retarded population. They compared two equated groups of foundlings one of which received very limited stimulation and adult contact and one which received these in great amounts. At the age of three the children were re-evaluated. They had all by then been placed individually in foster homes. The low-stimulation group were characterized as functioning at a high grade retarded level. The other group's mean I.Q. proved to be in the upper normal range. These same results obtained upon three subsequent evaluations conducted at five-year intervals. Thus the intervention of stimulation at and after the age of three was not sufficient to counteract the impact of earlier deprivation.

It seems likely that many culturally disadvantaged children are limited in educational potential as a result of a low intellectual level produced by stimuli deprivation in the first three years of life. In addition to their carrying the continual burden of cultural deprivation through their school age, they in reality are neglected-type mental retardates.

Large-scale preventive measures are possible, judging from the reports of Bronfenbrenner(4) and others who have described the results of high-stimulation nursery programs carried out in the Soviet Union. Although we might not agree with the philosophic or political theories involved, from the Soviet Union's standpoint, these programs have had favorable results.

No such major infant and nursery school programs have been undertaken in the United States. The highly popular Head Start Program has significant characteristics in this direction, but, in the opinion of this writer, it comes four years too late. There is great need for research into nursery programs for disadvantaged youngsters beginning no later than at the age of six months. The concept of the well baby clinic could be expanded for these children to include extensive periods each day for several years. Much adult-child contact with considerable social and individual stimulation involving many sensory avenues and with as full a range of experiences as possible should be provided. It is predicted that such a program would result in the children's achieving levels of success in their elementary education that would be far in excess of that expected in terms of their economic or cultural backgrounds. In _La Vide_(5), Oscar Lewis gives evidence that infant stimulation can produce emotional strengths which alone allow the individual to handle the adversities of the worst of socio-economic living conditions. If such relationships and stimulation could somehow be coupled with an educational point of view, a major impact on the effects of deprivation of whatsoever type might well be made.

Environmental deprivation is not only associated with economics, social factors, or ethnic causes. There is also the major type of sensory deprivation such as is associated with blindness. The writer has encountered numerous instances of blind children who, solely because of a lack of parental insight and knowledge, were so understimulated that they reached school age functioning as low level retardates. In contrast, we have seen blind infants who have been treated by their parents as if they were sighted who, when they had reached school age, were fully capable of competition in almost every sphere with their normal peers.

Emotional rejection, too, can be comparable to any degree of deprivation insofar as intellectual and social growth is concerned.

One can carry this point still further in the case of children with profound hearing losses. Such children, if exposed to an auditory environment coupled with sufficient tactual, olfactory, and visual stimuli, develop into inquisitive, interested, and intellectually agressive children. In contrast, deaf youngsters who were not provided with such experiences often appear retarded by the time they reach school.

One cannot overestimate the significance of an early multidimensional sensory program for the development of the infantile nervous system. To profit from learning experiences this thrust must begin at a very early age. Prekindergarten programs cannot be expected to undo the impact of neglect of the previous four years. An infancy-early childhood program is vitally needed.

Brain Injury and Cultural Deprivation

We mentioned earlier that the characteristics of exogeny were to be found at any intellectual level. At upper intellectual levels these children's difficulties are referred to by such terms as brain-injury, minimal cerebral dysfunction, language disorders, special or specific learning disorders, dyslexia, and many others.

As Berne(6) and others have suggested, culturally deprived children, because of a lack of early stimulation, may have suffered a central nervous insult in some degree, even though our present level of knowledge may not always permit a positive neurological diagnosis. The characteristics of brain-injured children have been described too frequently by this(7) and other writers(8) to require much exposition here. Suffice it to say that culturally deprived children, like the brain-injured, have been found to show marked degrees of sensory hyperactivity and distractibility, motoric disinhibition, figure-background pathology, dissociation, perseveration, angulation problems, compression, tendencies towards immaturity, and grossly immature and distorted self-concepts and body images.

Such exogenous type culturally disadvantaged children may need the highly structured clinical type of teaching(7,9) which has been found to be beneficial with hyperactive, emotionally disturbed and brain injured children. Educational programs for the culturally disadvantaged child might, in many instances, be more successful if oriented towards the psychopathological needs inherent in the child rather than towards social, economic, ethnic, or cultural factors.

Education in a Realistic Social Setting

The Maryland Educational Research Project under the direction of Mrs. Rozelle Miller currently involves a study dealing with educational approaches to hyperactive emotionally disturbed children(10). Part of this project appears very appropriate for the culturally disadvantaged child. Based on the social studies aspect of the educational program, it is conceptualized in seven well-coordinated steps around the concept of realistic "Simulated Environments". These steps include (1) creation of a situation, (2) the identification of a specific problem, (3) class planning, (4) small group planning on assumed aspects of the problem, (5) role playing and discussion, (6) conclusion, and (7) evaluation. The role-playing and simulated life situations are geared to the child's developmental readiness and his capacity for change.

After three years (grades 4-6) of exposure to this instructional method, the children have shown positive growth equal to, or in excess of, established developmental norms on all significant measures of achievement, self-concept, and socialization. A wide variety of other "unmeasurables" have also apparently improved including greater emotional security, techniques of problem solving, and tolerance of others' opinions. Its implications for developing wholesome social attitudes would also suggest the advisability of its application to socially disadvantaged children.

Language and the Deaf

There is a growing body of evidence indicating that there is an extraordinarily limited spoken vocabulary in the homes of culturally deprived individuals. Language deficit results in concept deficit. Persons concerned with the learning problems of the culturally deprived would do well to familiarize themselves with the psycho-educational and psycho-social research literature of the deaf for numerous clues which would be germain to this problem. Many of the techniques involved that might be applicable to the disadvantaged have been summarized by McNeill(11). The research on language acquisition by Lenneberg(12) would also appear very significant in this area.

The close relationship between language acquisition and measured intelligence has been a known factor for many years. This is true not only in the area of the deaf but also of the blind, cerebral palsied, etc. In socially and culturally disadvantaged children the lack of language-concept development undoubtedly has a significant impact on the development of intelligence per se irrespective of the innate potential of the organism. In a crash program of language development, however, it is apparent that two approaches must be taken to the problem: one, conceptualized in terms of the "peak" concept for children under the age of four; the other, based upon much more rigorous conditioning models and memory for children older than that age.

Those interested in these and related issues would do well to consult the Volta Review's recent volumes as well as the summaries of leading research in the areas of learning, audition, and visual perception in the Annual Review of Psychology. The role of "Language and the Education of the Deaf" in relation to the culturally deprived has been the object of an import recent summary statement by Herbert R. Kohl and the Center for Urban Education.

The Special Education Teacher and Behavior Modification

One of the most significant books on the culturally deprived has been Reissman's The Culturally Deprived Child. P.J. Groff(13) submitted 78 Reissman statements to nearly 300 teachers who then agreed or disagreed with statements. Very little consensus was observed in their attitudes towards the culturally deprived. Groff's article contains numerous leads which could generate a broad series of learning investigations. The attitudes of teacher toward children constitute one of the most significant influences upon the learning of the children. This has been demonstrated in the case of exceptional children and undoubtedly applies to culturally deprived youngsters. That there are simple and inexpensive techniques available for improving teacher attitudes has been reported elsewhere(14).

Behavior modification procedures of relevance for classroom teachers have been thoroughly presented by Whalen(15). He addressed himself to the problem of how the teacher can effectively break into the cycle of self-defeating behavior exhibited by emotionally disturbed children. His discussions of psychoeducation therapy, life-space interviewing, structured approach, and behavior modifications all seem relevant to the problems of educating culturally disadvantaged children. The work of Bijou(16) on behavior modification with retarded children, as well as the entire literature of reinforcement theory, seems very relevant.

Lindsley's(17) work on the modification of behavior of retardates through the manipulation of certain environmental variables has application to the culturally disadvantaged, as does that of William Morse(18) which is concerned with the classroom behavior of emotionally disturbed children. The research of Roger Barker(19) and his associates seems equally relevant.

Miscellaneous Studies

Research into the role of incidental learning in culturally disadvantaged children, as was done by Stevenson and Zigler(20) with retarded children, would be valuable, Other workers(21,22,23), too, have studied the impact of rigidity and perseveration on the learning of retardates. The role of such factors in the adjustment and achievement of the disadvantaged has not been investigated sufficiently.

The work of Riley Gardner(24) in the area of cognitive structure with brain-damaged children, although largely theoretical, provides a rich resevoir for the stimulation of research with culturally disadvantaged children. Similarly relevant is the work of Reitan on the relationship of psychoneurology to learning and achievement. The recent publication entitled The Teacher of Brain-Injured Children: A Discussion of the Bases for Competency (Syracuse University Press, 1966) contains much of Gardner's and Riley's discussions.

Rubin and his associates(24) have been especially effective in handling the matter of cognitive-perceptual-motor function in emotionally disturbed children. The report of the research of those authors, together with those of Haring and Philips(26), and Cruickshank et.al.(7), constitutes a significant reference for those concerned with cognitive structure and its relation to the education of culturally deprived children and youth.

Frostig, Rappaport, Strother, Gallagher, Kephart, Barsch, and Geddes(27) have each contributed significantly to an understanding of the relationship between perception, cognition, and motor development to learning and adjustment of brain-injured children, in particular. Getman's work on readiness(28) and Benton's(29) on cerebral dominance, laterality, and handedness in relation to learning, like those referred to immediately above, contain concepts which need to be explored in relationship to the culturally disadvantaged child.

The research methodologies employed by Cowen et. al.(30) and Sommers(31) in their work with the visually handicapped seem very relevant to this area. Similarly, one would do well to cull from the work of G. O. Johnson(32), Force(34), and J. J. Johnson(35) implications for research related to integration and segregation. These workers, as well as Cruickshank, Summers, and Wilberly, studied issues similar to those that would be involved in research into how other children view their culturally disadvantaged classmates.

The area of programmed instruction, as dealt with by Malpass and Blackman(36), Capobianco and Blackman(37), Ellson(38) and Sturlow(39), should be extended to research with socially disadvantaged children.

Implications for individualizing curricula to meet the specific needs of disadvantaged youngsters might be drawn from the work in this area done with retarded children by Cruickshank(40) and Dunn(41).

Longitudinal research in this area is greatly needed. Some studies done with exceptional children which can serve as methodological models are those reported by Goldstein, Jordan and Moss(42), Blatt(43), and Cassidy(44). Equally relevant is the review of longitudinal research on mentally retarded children provided by Heber and Stevens(45).

Those seeking research models applicable to the study of prevocational and vocational programs for the disadvantaged should consult the reports of Carriker(46), Porter and Milazzo(47), and Cohen(48).

Addenda

In preparing this paper and in thinking about the problems of special education as they may relate to the culturally disadvantaged child, numerous problems came to mind which would warrant study but which could not be treated thoroughly because of time limitations. I should like to briefly raise some of these issues as possible springboards for discussion:

1. What are the unique skills and competencies a teacher needs in dealing with culturally disadvantaged children?

2. How can socialization skills be developed which will enable these children to adapt to middle class culture if this be an important goal?

3. How can such children be helped to inculcate middle class values? Kluckhohn has done some interesting related work.

4. Do the behavior-motivating rewards of disadvantaged children differ from those of the middle class?

5. In any area of low socio-economic status, some children "make it" and others don't. What variables are critical here?

6. The family life and economics of the culturally disadvantaged have much in common with that of children reared in married student housing units adjacent to many universities. What are the significant differences in the two low-income groups, both having many children, in terms of the learning abilities

of children? What variables make for the differences in self-concept between children reared in student-housing and slum environments?

7. Whom do culturally disadvantaged children select as their heroes and identification figures? Can these models be used as educational media?

8. When do slum children come to realize that they live under "different" conditions? Is it when they start school, begin dating, begin job seeking? When do they lose hope? When do they learn of the barriers to inter-racial marriage? What factors bring this realization about? Can these factors be altered?

9. What impact does advertising and the mass media have on producing desires for products? Do the culturally deprived desire the same things as the middle class?

10. If jobs could be found for disadvantaged youth in the 18-25 year range, would their younger brothers, sisters, and neighbors undergo a rise in their levels of aspiration?

11. It was once thought that teachers should be selected from those who "made it" out of the slum. Such people, however, seem to often reject the slum and develop conservative attitudes What factors determine this? Can such attitudes be altered?

12. Are there ways or places in which visits by culturally deprived children to neighborhoods, homes, schools, etc. of middleclass children can take place with positive results? Would reciprocal visits by middle class children help? kWhat intercultural contacts would prove most mutually beneficial?

13. In terms of special education models, traditionally the handicapped child has been given a better chance with special teachers, material and programming. How about trying this with the disadvantaged under experimental conditions so that the effects could be rigidly measured and manipulated to achieve maximum results? A laboratory of learning at a university might provide a setting for this.

14. Is there a way to change a teacher's values so that they will conflict minimally with those of her culturally deprived pupils?

15. The goals for the culturally deprived child should be adequately defined. What type of life will he or she lead? What type of work will be available for him or her? Is the goal the same as for the blind, deaf, crippled, brain-injured or otherwise handicapped child? These are goals both for the child to emulate and the education system to aid toward.

16. Middle class children have certain behavioral skills which enable some degree of competency in the middle-class-oriented school system. Can these be identified, then taught to culturally deprived children as skills?

17. Studies of the aspirations and feelings of culturally deprived families, persons, and groups are very much needed. Anthropological investigations perhaps of the sort Oscar Lewis has done, could be one approach.

18. What are the attitudes of school administrators towards special programs for the disadvantaged?

19. Do the learning patterns of the disadvantaged differ from those of retardates, "normals"" and the gifted?

20. What about disbanding the schools and having teachers instead go out on to the streets with neighborhood groupings, gangs, and families? At least, let us study the impact of greater teacher involvement in the homes and local hangouts in the area from which the culturally deprived come.

21. Greater interaction between university consultants and teachers would be advisable, as done in the programs of Drs. John Johnson and Peter Knoblich. The teachers might learn some specific skills and research studies might be generated.

22. How can speech therapy or speech teachers instill different speach patterns in the disadvantaged so as to minimize the barriers and separateness which result from their different dialects and speech patterns? Individual or small group tutoring by housewife-teachers might be tried. Howard University, for instance, has a program for Negro college students to improve their language effectiveness in job interview situations, etc.

23. It is time to investigate whether a new specialty is needed -- the expert in cultural deprivation. Such individuals, who need not be drawn from any one particular traditional discipline, might work with groups, teach in schools, organize neighborhoods, serve as a speech model and behavioral model, etc. We need to know more about the interests and motivations of those people who are attracted to this field.

24. Special education as taught in universities sometimes has an opportunity to grapple with one problem area such as cultural deprivation. Typically, such interchange of information and ideas is very helpful to understanding other disciplines and other

ideas. Such meetings might involve a variety of students, faculty and teachers, as well as some culturally deprived children. Subsequent changes in attitude and behavior of the students could be studied.

25. Consultants to the slum schools could set up demonstrations in which they would actually teach a class while teachers watched and learned, and then later would discuss their techniques with the regular teachers.

26. The Neighborhood Youth Corps, among other programs, apparently provided some monies to get jobs for children. How about getting jobs for disadvantaged children and drop-outs in schools as teacher aids and assistants. Employment in the school would provide jobs in a stimulating environment.

27. Special education has always used the special class. How about monies for this from the Neighborhood Youth Corps and from HEW to set up special classes with special resources for 1 or 2 or 3 culturally deprived children?

28. We need to study personality variables, such as Rokeach's rigidity syndrome, which might be related to teacher's attitudes and behaviors towards disadvantaged children.

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B

BEHAVIORAL MODIFICATION PROCEDURES

Dr. Lee Meyerson

As a middle-class person, it seems evident to me that many of the problems of economically underpriviledged persons arise from three sources:

(1) They do not engage in certain behaviors that are highly values by the middle-class majority.

(2) If they engage in some desirable behaviors, they do so only weakly or sporadically.

(3) They do engage in behaviors that are judged undesirable.

The same statements can be made about handicapped people as a group. Like the handicapped, many of the economically underpriviledged lack important tools for behavior; they are discriminated against because they lack these tools; and often they come to devaluate themselves as inadequate people who do not "belong," who are isolated from the main stream of contemporary life, and whose chances of reducing their marginality to the larger culture are small. Like the handicapped, too, the underprivileged are sometimes said to be unmotivated to improve, to have poor self-concepts, to be deprived, to be inadequate in language and higher level conceptualization, to be oriented to immediate gratifications and to lack a desirable longer time perspective, etc.

If we accept these statements at face value, together with the implicit middle-class values they reflect and exemplify, it is important for research strategy to consider the following question: what do we wish to do about it?

We have several options in research strategy which will influence the selection of the problems to be investigated and the results that may be considered acceptable:

(1) We can describe the problems, classify them, compare their frequency in different populations, and hopefully measure them with increasing precision. This approach encompasses almost all of the existing research in special education and rehabilitation. In my opinion, the results have often been unrewarding and sometimes misleading.

(2) We can attempt to order the behavior of the disadvantaged to higher level abstractions such as ego-strength, self-concept, level of aspiration, new psychological situations, overlapping psychological situations, and the like, and attempt to derive and "understand" the conditions under which the observed behavior will appear. Ultimately, we may have a micro-theory of economically disadvantaged behavior. In special education and rehabilitation, efforts of this kind have been impeded by failure to develop a technology for behavioral control, although they have been intellectually satisfying. For example, predictions of behavior in new and overlapping psychological situations can be made with some accuracy and surity, but procedures for reducing "newness" and "antagonistic overlap" hardly go beyond the level of common sense.

(3) We can attempt to direct our efforts to the modification of behavior itself; generating new behavior by shaping it from existing operants; maintaining desirable behavior by reinforcing it; and alternating or removing undesirable behavior by extinction, punishment, or counterconditioning of incompatible behavior. The technology for this effort already exists and investigators in special education and rehabilitation who are using it are reporting increasingly satisfactory results. In some views, Behavior Theory

encompasses all of the fact, procedures, and directions necessary for the basic description and control of human behavior. A belief in the "truth" of the system, however, is not required. The technology has been used effectively by investigators of diverse theoretical orientations.

These three research strategies I call, respectively, the clinical, the field-theoretical, and the behavioral approaches. Let us now schematically compare these three approaches in regard to certain research strategies which characterize them:

A. Behavior is Most Influenced or Controlled by:

Clinical: The past -- early experiences.

Field Theory: The present life-space.

Behavior Theory: The consequences which follow behavior.

B. The Locus of Control is in:

Clinical: The person.

Field Theory: The phenomenological perception of the psychological situation by P (the person). The relationship in the space between needs and abilities in P and the goals and barriers in E (the environment).

Behavior Theory: The environment.

C. Behavior is Strengthened (and Weakened) by:

Clinical: Strengthening the person -- verbal therapy.

Field Theory: Strengthening the person, changing E, or P's perception of it.

Behavior Theory: Changing the environment so that "good things" or "bad things" follow, in specified ways, the behavior to be altered.

D. The Major Task of Psychology With Respect to Behavior is to:

Clinical: Measure it.

Field Theory: Understand it.

Behavior Theory: Control it.

There are advantages, of course, in each approach. It is my belief, however, that the highest return for research effort in rehabilitation and perhaps for the Poverty Program also, is likely to be found in the Behavior Modification approach.

I would like to turn now to a description of some of the main features of the behavioral approach to human control. These views and examples have been presented elsewhere (e.g. Michael and Meyerson Harvard Educational Review, 1962, 32, 382-402; Meyerson, Kerr, and Michael in Cases In Behavior Modification (S. Bijou, editor), 1964.

Inherited genetic and constitutional determiners are not under the control of, or subject to, direct experimentation by behavioral scientists. The only means of influencing human behavior is through changes in the environment. Some manipulations, such as pharmocological and surgical interventions, of course, are not available to psychologists and educators. The phenomenon with which we deal, then, is behavior, and the independent variable which controls behavior must be the environment. A behavioral system attempts to specify, without reference to unobservable, hypothetical inner-determining agents, the conditions and the process by which the environment controls human behavior.

Respondent Conditioning. Certain physical events in the environment are related to certain human muscular and glandular activities in a relatively invariable way, e.g. a light shined in the eye elicits a constriction of the pupil. Some of these stimulus-response relationships are present at birth and are called reflexes. A stimulus which is not part of a reflex relationship becomes a conditioned stimulus for the response by the repeated, temporal pairing with an unconditioned stimulus which already elicits the response. This new relationship is called a conditioned reflex; and the pairing procedure is called respondent conditioning.

In general, conditioning does not produce permanent effects. If the conditioned stimulus is presented frequently in the absence of the unconditioned stimulus, a procedure called extinction it loses its eliciting properties.

These procedures, as you know, were first explored systematically by I. P. Pavlov.

Most of the behavior that is of interest to rehabilitation and to those working with the disadvantaged, however, does fit into the paradigm of the reflex. There is in general no identifiable eliciting stimulus for the broad class of "voluntary" activity called by B. F. Skinner operant behavior. The basic operation of respondent conditioning, however, is significant for our fields of endeavor, since a portion of almost any kind of stimulus effect can be transferred to a new stimulus by the procedure of pairing the two stimuli.

Operant Conditioning. For a large class of non-reflex behavior, the critical events are the environmental consequences of the behavior. It is convenient to group the kinds of stimulus events which are consequences of acts into three major classes in terms of their effects on operant behavior:

(1) Positive reinforcers. Sometimes called rewards, these stimulus events are defined by the observation that the behavior which preceded them has a higher probability of occurrence under

similar conditions in the future. Some positive reinforcers are of biological significance, e.g. food, water, sexual contact, and some are of acquired significance, e.g. praise, affection, grades, money.

(2) Negative reinforcers. These unpleasant or painful, aversive stimulus events are defined by the observation that behavior which preceded their removal is more likely to occur under similar conditions in the future. These may be physical in nature, e.g. extremes of temperature, electric shock, or acquired, such as social disapproval, criticism, nagging, threat.

The operation of presenting a positive reinforcer contingent upon a response is called positive reinforcement. The operation of removing an aversive stimulus contingent upon a response is called negative reinforcement. (This should not be confused with punishment which is the presentation of an aversive stimulus contingent on a response).

(3) No consequence and neutral stimuli. Responses continue to occur if they receive either positive or negative reinforcement. They cease if followed by no consequence or by neutral stimuli. The procedure of allowing behavior to occur without reinforcement is called operant extinction (in contrast to respondent extinction which is the procedure of allowing a conditioned stimulus to occur without pairing it with an unconditioned stimulus.)

The specification of the events of acquired reinforcing value for an individual human requires either a contemporary investigation or considerable knowledge of his environmental history. It appears that such an event becomes a conditioned reinforcer in some degree simply by being paired with another reinforcer. However, most of the conditioned reinforcers that are important in human affairs are, in addition, stimuli in the presence of which further behavior is reinforced. In common sense terms, most conditioned reinforcers are means to an end which may be an unconditioned reinforcer or another conditioned reinforcer. For example, a match for a smoker will serve as a reinforcer for the behavior which procured it because it makes possible the further behavior of striking it and lighting the cigarette.

Shaping. Inasmuch as an operant response must first occur before it can be followed by reinforcement, one might suppose that operant conditioning cannot be used to produce new behavior. However, the detailed topography of a response -- the particular muscle actions, including force and speed of various muscle component -- varies from one occurrence to another. To produce new behavior then, or behavior that has not appeared in the response repetoire before, it is sufficient to selectively reinforce one of the variations in topography which resulted from the previous reinforcement, while allowing the other variations to extinguish. This has the effect of producing a further class of variations from which one may again differentially reinforce some and allow others to extinguish, and so on.

For example, in teaching a child to talk, his efforts to pronounce a particular word will at first be reinforced rather uncritically. Eventually, some of the variations will resemble accepted pronunciations more than others and receive selective reinforcement while other variations are allowed to extinguish. These events have the effect of producing a class of responses which come ever closer to the correct pronunciation than the last reinforced response, and the selective reinforcement can be applied again. This procedure for producing new behavior is called shaping.

Stimulus Control of Operant Behavior. The future probability of response is highest when the stimulus conditions resemble most closely those existing at the moment of previous reinforcement. Any change from the stimulus conditions that existed at the moment of reinforcement will reduce the tendency to respond, and the greater the change, the greater the reduction. To some extent the similarity of different stimulus conditions will depend on the biological characteristics of the species. But in part, as in the case of reinforcers, the importance to the individual organismof the various aspects of the stimulus condition will depend on the previous history of that particular organism.

By the skilled use of the procedures of reinforcement and extinction, we can bring about a more precise type of stimulus control that is called discrimination. The process is called discrimination training. If in the presence of a stimulus a response is reinforced, and in the absence of this stimulus it is extinguished, the stimulus will control the probability of the response in high degree. Such a stimulus is called a discriminative stimulus.

Almost all important human behavior is under the control of discriminative stimuli. Although part of the educational process involves extensive shaping, particularly for motor skills, the educator's major efforts are directed towards the development of discriminative repertoires, or in common terminology, knowledge. Many details regarding the building of discriminative repertoires have been discovered in the experimental laboratory, and these findings are now beginning to see systematic exploitation in the field of programmed instruction.

Schedules of Intermittent Reinforcement. Reinforcement does not lose its relevance once an adequate topography has been developed and the behavior is under proper stimulus control. It has additional effects that may be treated according to the schedule by which reinforcement is given.

An important characteristic of much behavior is that it is repeated, either because the appropriate stimulus conditions persist or because they recur. Having learned to ask a parent for a cookie a child can immediately ask for another, and another. This behavior must eventually cease because of temporary changes in the parent's disposition to provide the reinforcer, because the reinforcer loses its effectiveness by satiation, or for other reasons, but there will be other occasions for similar behavior to occur. If every occurrence of such a repeatable response is followed by reinforcement the behavior will continue until other variables exert control. On the other hand, if reinforcement is discontinued altogether the behavior will cease.

Between the extremes of continuous reinforcement where every relevant response is reinforced and extinction where there is no reinforcement there are many situations where responses are only occasionally reinforced. Such intermittent reinforcement might be expected to produce results intermediate between these two extremes, but this is not the case. The situation is much more complex.

Ratio reinforcement schedules involve solely a number contingency, usually specified in terms of the ratio of responses to reinforcements. Industrial piecework pay is an example. Under such a schedule, the more rapidly one works the more frequently one is reinforced and large amounts of work per reinforcement can be tolerated. Simple ratio reinforcement does not have self-corrective properties. Any temporary reduction in the tendency to respond simply delays the ultimate reinforcement. Vicious circles can easily develop where the less one s responds the less one gets, and therefore the less one responds in the future.

Interval reinforcement involves only temporal contingencies. Under such a constant schedule, responding increases in frequency as the time for reinforcement approaches, but overall response rate is only moderate. Resistance to extinction is much higher than in the situation of continuous reinforcement. In contrast to ratio schedules, interval schedules in general are self-corrective. Any temporary reduction in response frequency is counteracted by receiving the next reinforcement after fewer unreinforced responses, and this restores the tendency to respond.

Intermittant reinforcement is of considerable practical significance because of its relationship to the traditional field of motivation. The well motivated person is one who works at some activity with persistence, even though his reinforcement is long delayed or his rewards obtained only occasionally. It is not evident, however, that these properties are *in* the person or that the behavior cannot be produced by manipulating the environment. Variable interval schedules generate great persistence in the face of non-reinforcement, and ratio schedules produce large amounts of work for the minimum number of reinforcements.

Deprivation and Satiation. Not all motivational problems fit the paradigm described above. Deprivation and satiation have two major effects on behavior which cannot at present be reduced to the variables discussed so far.

Many unconditioned reinforcers work only if the organism has been deprived of them. Satiation weakens and deprivation strengthens their effectiveness. In addition, deprivation with respect to a reinforced results in an increased liklihood of occurrence of all the behavior that has in the past been reinforced with it. Stated in terms of food, for example, the first effect is that as deprivation time increases, food becomes a more powerful reinforcer. As eating continues, food loses its reinforcing capacity. The second effect is seen in that food-seeking behavior becomes more frequent as time since last eating increases, and less frequent as eating proceeds. This second effect cannot at present be reduced to the first, since the increase in food-seeking behavior can be observed even before reinforcement has been received.

In summary, deprivation and satiation are crucial determiners of the momentary effectiveness of a number of reinforcers, and the momentary strength of large classes of responses. But to pattern all "motivational" problems on this model would be to neglect other equally if not more important determiners.

Emotion. Emotional variables affect a large class of operant responses. For example, a person who is ordinarily described as fearful shows an increased tendency to engage in all those operant behaviors which have in the past been reinforced by escape from current or similarly difficuult situations. Further, those aspects of his repertoire which ordinarily receive positive reinforcement are weakened. His tendencies to run away, to hide, to seek help from other individuals, are all increased, whereas his tendencies to eat, play, and engage in normal social behaviors are decreased. These phenomena presently are not well understood.

Let us now turn to a case in the field of rehabilitation which was handled along the lines suggested by some of behavior theory principles I have just outlined. Most of the experimental work was conducted by first-year graduate students who had no previous experience in clinical psychology or rehabilitation, but who did know learning theory. I hope that this case will illustrate approaches which might be useful in helping the culturally disadvantaged.

FEAR OF FALLING IN A CEREBRAL PALSIED CHILD
THE CASE OF TOM

Background. Tom was born with multiple congenital anomalies. In addition to nystagmus, ptsosis, scoliosis, and three-fingered hands without thumbs, he was diagnosed as a "mild spastic with left hemiplegia". He was one of several, seven-year-old, cerebral palsied children participating in an experiment concerned with investigating the process by which tokens (poker chips) might be established as generalized conditioned reinforcers.

In rehabilitating handicapped children, it is often necessary to generate new behavior or to strengthen weak behavior. Since these children are not deprived of primary reinforcers, and it is usually impossible for social and administrative reasons to place them under such deprivation; it is not easy to find conditioned reinforcers of powerful and continuing effectiveness. Ideally, a reinforcer should have such characteristics as to allow it to be easily dispensed by the experimenter or therapist, delivered immediately contingent upon the appropriate behavior, non-satiating or low in satiation so that many can be dispensed in a short period of time, non-distracting or low in distraction by reason of its own intrinsic reinforcing properties, appropriate for many different deprivations which may exist in any subject and capable of use in a variety of situations. Money has these characteristics for adults. Tokens exchangeable after the experimental or therapeutic sessions for a wide variety of social and material reinforcers may be equally effective for handicapped children who are given some experience in a "token culture."

The main experiment, in which Tom participated, showed that tokens, exchangeable for toys, were effective generalized conditioned reinforcers in shaping increased attention span, speed and accuracy in two behaviors: hand-eye coordination in coloring and manipulation in a nut-bolt-washer assembly.

Problem. Tom would not stand unless he had something to hold on to, and he would not walk unless he held someone's hand. It was believed by the child's physician and physical therapist that he could walk alone, and recurrent but unsuccessful efforts had been made in the past to induce him to do so. It was said that he had an extreme fear of falling, but the child refused to attempt the exercises that would teach him to fall without discomfort or injury.

Observation. Observation confirmed the fact that Tom never stood or walked unassisted. Attempts were sometimes made to coax him or goad him into walking. He smiled shyly and was good humored in these situations until ultimately someone took him by the hand and walked with him. Tom had "insight" and "acceptance" of his disability. He talked freely and at some length to many people about his inability to walk alone.

Behavioral Analysis. The adults in the environment were reinforcing the non-walking behavior. The child was at the center of the stage and received a great deal of attention, which he seemed to enjoy, for not walking and for refusing to fall.

The terminal behaviors desired, their criteria and conditions for their occurrence were as follows: 1. Desired Behaviors. The child stand and walk independently, and he should learn how to fall safely. 2. Criteria for Success. He should walk unassisted to and from the experimental room, and he should fall, in the approved way, on command. 3. Behavior to be Generated, Extinguished, or Altered. The problem appeared to be one of overcoming the fear of falling and having the child experience the freedom of unassisted walking --- to get him over the hump so that the naturally reinforcing contingencies in the environment that are open to one who walks alone could exert their effects. It was decided that these behaviors$_s$ could be generated by reinforcement more powerful than the child was receiving for not walking. However, the social reinforcement given for not walking was so widespread within the rehabilitation center, and of such long standing, that it was not considered feasible to try to extinguish this behavior in the staff. 4. Reinforcer. Tom came strongly under the control of tokens in the main experiment mentioned earlier, and there was evidence that they would serve for him as generalized conditioned reinforcers.

Behavioral Treatment. Treatment was begun by reinforcing with tokens successive approximations to independent waoking. First, while engaged in a coloring task, Tom was given two extra tokens if he scooted in his chair from the work table to the experimenter's correction desk and pulled himself up to a standing position. If he chose not to come to the desk to have his paper corrected, the experimenter would go to his table, but he received no extra tokens. After one reinforcement for coming to the desk, Tom refused to let the expe5imenter come to him. After a dozen reinforcements for this behavior, Tom was offered extra tokens for standing at the desk without holding on. He met this contingency in one 20-minute session and thereafter would stand unassisted. During the shaping process, the child's verbal behavior changed from comments about being unable to walk to statements such as, "look, I can stand by myself."

The next step was to place two chairs back to back close enough so that Tom could hold onto one chair, turn and grasp the other chair without letting go of the first chair. He was reinforced with tokens for this behavior, and then the chairs were gradually moved apart until it was necessary to take one or more steps without support in order to get from one chair to the other. At the end of the first 20-minute session, Tom was walking three unsupported, unassisted consecutive steps from one chair to another.

At the next session five days later, Tom walked into the experimental room unassisted, and it was obvious from his verbal behavior that walking, in itself, was now reinforcing. It was not possible to trace what had occurred in the institution during these five days. It seems probable that some unassisted walking occurred which provided the opportunity for the physical therapist, who was also working on this behavior, to give massive, positive, social reinforcement. Combined with the intrinsically reinforcing effects of the walking itself, the consequences were sufficient to maintain the behavior in strength. It was evident that the child was now walking freely all over the institution, and although it was believed that the experimental effort provided the catalyst, we could not be sure that it was the behavioral treatment and not some adventitious occurrence that was responsible for the result.

Accordingly, attention then turned to a behavior that was non-existent in the subject's repertory --- falling on command, correctly and safely. The physical therapist had given up in trying to teach this behavior, and she agreed not to attempt to teach it again during the period of the experiment. The physical therapist stated that the ability to fall voluntarily was an important behavior to develop inasmuch as incoordination resulting from spastic paralysis probably would result in the child's falling from time to time. It would be beneficial if he would learn to fall correctly and safely. However, she had been unable to induce Tom to engage in falling exercises under any circumstances.

Following the instructions of the physical therapist to the experimenters, falling was broken down into three phases: 1) placing the subject's hands and knees on the mat and having him roll his body to one side. 2) Placing the subject on his knees with hisbody in an erect position, having him fall forward on his hands, and then roll to his side. 3) Standing the subject beside the mat, having him fall to his knees, to his hands, and then roll his body to one side.

Tom was told and shown the successive approximations to falling behavior outlined above. Tokens were then dispensed contingent upon his performing the required behavior upon command.

Results The results are shown in Table 1. It will be seen that after the rolling response was well established, it was possible to proceed quickly to the behaviors of falling from the kneeling position and falling from an upright position. More rapid acquisition of the desired response might have been possible. At the end of the first session, Tom was reluctant to stop and asked the experimenters if he might try, "for tokens," the falling from an upright position. This was not permitted because of the complexity of the response and the inexperience of the investigators in physical therapy activities. It is perhaps sufficiently noteworthy that an important behavior that had been unobtainable previously by traditional physical therapy methods was obtained in just four sessions of 20 minutes each by utilizing principles of behavior theory. Moreover, the behavior was engaged in willingly, almost eagerly, with little or none of the emotionality that the subject was reported to have shown in prior attempts to teach him to fall.

TABLE 1

Responses

Sessions (20 minutes)	Rolling to side	Falling from knees to hands and rolling	Falling from upright to knees, hands, and rolling
1	8	3	--
2	2	2	7
3	3	-	4
4	-	5	6

The rapidity with which the falling behavior was obtained lends some support to the belief that the tokens functioned as strong, generalized conditioned reinforcers. As in the waoking study, the desired behavior was manifested immediately after token reinforcement was put into effect.

C

COMMENTS ON CRUICKSHANK'S PAPER ON MODELS FROM SPECIAL EDUCATION FOR EDUCATION RESEARCH IN CHILDREN WITH LEARNING DISABILITIES OF SOCIAL AND ECOMONIC ORIGIN

by: Leonard Diller

Cruickshank's assignment is a most difficult task, and he has done a good job in trying to take into account many trends in a sprawling field. However, I think that there are other ways of conceptualizing the problem that was presented to Cruickshank. Let me suggest some of them.

First, are learning disabilities, which stem from social deprivation, the same as those which stem from neurologic or psychologic disorder? The behaviors of children who fail or underachieve may be the same; the origins of the failure may make a difference. Failures in culturally deprived groups may be encouraged or at least not overtly discouraged because failures are not dissonant with the wishes of the child, his peers, his family, and his immediate community. This is not the case with disorders due to neural or psychological etiology. This point can be made another way. Cultural attitudes are transmitted in public, overt ways and are seen as desireable by the transmitter and receiver. This is not the case with neurologic or emotional impairments. Although parents may transmit a neurosis, they are ashamed of it and would like to get rid of it, rather than perpetuate it. This point is critical, not so much in the technology of psychological appraisal or teaching methods, etc., but in the realm of the child and his family recognizing that there is a problem and wanting to do something about it. This, then, would give rise to a series of researchable questions in the realm of: (1) what is a "problem" for a child and the parent; and (2) the nature of help seeking. These questions might require in depth clinical approaches in the pilot stage to get at the dynamics of the situations, before one can map out the most salient parameters. Another research suggested is how are values transmitted? At what age, etc.?

Similarities and differences between the two fields may also be viewed from several other parameters:

(1) Are attitudes of the non-handicapped towards the handicapped similar to those of the non-culturally deprived towards the deprived, or are they different? Cruickshank raises this question when he alludes to a study of teachers' attitudes towards the culturally deprived at the end of his paper. There is a literature in the field of the physically handicapped that is pertinent here:

a. Yuker, et al - Studies on attitudes towards the disabled (ATDP).

b. Siller, J. - Refinements of the ATDP from a psychometric standpoint.

c. Whiteman & Lukoff - Factorial approaches in attitudes towards blindness and attempts to change these attitudes.

d. Cranofsky, J. - Measurement of attitudes towards the disabled by a projective technique.

e. Richardson, S. - Preferences for different kinds of handicaps among a variety of children. I believe he has data (unpublished) on the transmission of values (congruencies) from parent to child.

f. Cowen, E., et al - Argued that people who are prejudiced against the blind do poorly on the F Scale.

g. Kogan, N. - Makes a similar point about people who are prejudiced against the aged. (Same point is made by Oberleder, M.)

The research Cruickshank cites on teachers' attitudes towards exceptional children ought to be looked at from the standpoint of measurement of attitudes and trying to change attitudes towards all handicapped children (social, physical, mental.)

(2) Cruickshank alludes to the probability of culturally deprived groups having "actual insult to the nervous system." (He cites Berne to support his point. Is this correct?) The interaction between cultural deprivation and brain injury is very complex. This is a literature which is worth

reviewing. (A literature review of this topic would be worth sponsoring at this time.) This could be done very cheaply.) In general, I know of no serious attempts (outside of Bernard Farber) to view handicapping conditions in general from a social-class standpoint.

3- Cruickshank has actually skirted the problem of a "psychology of the handicapped child." For this reason his paper tends to poke out in many directions. Perhaps this reflects an implicit point of view that there is no single psychology of the handicapped child. Nevertheless, I think it is correct to say that there are psychologies of handicapped children. These psychologies can be readily translated into models for viewing culturally deprived children. I can think of four approaches:

1. Individual differences - This approach, which constitutes the bulk of researches, basically asks the question, do disabled children differ from non-disabled children on any instrument or parameter the experimenter specifies? It is the oldest approach to the field. Barker, Gonick and Wright attempted to kill it more than 20 years ago on the grounds that the results it yielded were ambiguous and unreliable, and it led nowhere and spawned a vast number of little, unrelated studies. However, there are a number of interesting hidden philosophical premises here which are worth examining, e.g. tests of cerebral palsied children have been criticized on the grounds that they were standardized on intact children with "normal" middle-class social environments, no sensory motor handicaps, etc. These criticisms have been dealt with in three ways: trying to develop fair tests for cerebral palsied individuals, which do not penalize them for their handicaps; accepting the norms at face value on the grounds that CP's will have to compete in a world of non-CP's; and, taking an opposite track, that each individual should be regarded on his own merits rather than on a set of arbitrary, external norms;

the latter is the approach most typically accepted by the clinician. However, I know of very little research along these lines. [Perhaps the Skinnerian approach may be seen as supporting this view in the sense that it attempts to document the case study method in a way which has not been done before, i.e. one tries to elicit the optimum behavior from the subject.]

2. Micro theory approach - Some have approached the disabled from the standpoint of taking ~~out~~ a notion derived from a higher level theory wherein the disabled were supposed to represent an experiment in nature providing a good test of the theory or the theory served to call attention to a certain facet of the disability. Under this rubric would come studies of the disabled from the standpoint of Adler's "organ inferiority" theory, or body-image from psychoanalytic theory cum Schilder, or studies in space perception in hemiplegia from the standpoint of sensory tonic theory. This approach has had a sputtering success. As an investigator makes his point, he tends to move on to develop his theory, but with reference to the disabled individual matters are left up in the air; e.g., while hemiplegics may have difficulty in perception of the vertical, is this related to ambulation? The theorist generally suggests that it is, and then moves on to test another proposition without really testing his own suggestion. I suppose the analogue to this approach in the culturally deprived is the application of theories derived from laboratories of social psychology.

3. Somatopsychology - This psychology has been most fruitful on a theoretic level. Many of the concepts may be of interest, e.g. the psychology of help, denial, empathy, the nature of valuing. (Along these lines, Cruickshank cites with enthusiasm the simulation project with its role playing. This is very reminiscent of Tamara Dembo's suggestion on how to deal with an individual who shows denial by role playing. But, in applying this to people who showed denial, I found that they wouldn't or couldn't enter into role-

playing situations. Indeed, the same forces which supported the denial probably inhibited the role playing. I am afraid a similar effect may take place when simulation is used. The children who are in most need of social studies may not be able to use the method.) From the standpoint of somatopsychology, the question may be put, is the situation of the disabled similar to the culturally deprived? A number of interesting research questions come to mind, e.g. adolescents who are relatively mildly disadvantaged have a more difficult time than those who are greatly disadvantaged? How does one sustain hope in the face of massive problems which are relatively unyielding of easy solutions? How does one make it easier for a person to ask for help?

4. Psychology of rehabilitation - This is a crude set of principles which have not been formally articulated, but I might put them down as follows:

In addition to an analysis of the individual (his make-up and his needs), one need an analysis of the tasks one is asking the individual to solve in terms of their psychological demands. In short, we need a psychology of tasks as well as of individuals.

Tasks may be arranged in an order of difficulty. Let me cite an unpublished study in the field of rehabilitation. We interviewed 100 adults entering a rehabilitation program and asked them what their goals were. Their answers were roughly as follows: 95% wanted increased muscle strength and motor power; 70% wanted improvement in functional motor acts, e.g. walking, self-care; 40% wanted help with vocational and social problems; 10% wanted psychotherapy.

We found further that: (1) those who wanted physical therapy did not necessarily want the other kinds of therapy, whereas those who wanted the psychotherapy always wanted the other kinds of treatment; (2) patients'stated preferences were correlated with their levels of personality integration on projective tests so that more "mature" patients wanted the more complex therapies; (3) both the levels of personality and stated goals correlated with the therapists' ratings of adjustment in separate areas of treatment, so that more physical therapists, for example, rated patients as motivated for their area than psychologists did for their area.

In rehabilitation, because so many problems prove unamenable to correction, we generally try to work with assets and bypass deficits. This principle holds true in the psychosocial area, but may not be so valid in the cognitive area. At any rate, it is an open question for education: Do you remedy the defect or adapt to it? My own hunch is that where you can define and treat a defect, you do. If you can't, then you treat assets.

In rehabilitation there is stress on the functional, pragmatic and inductive rather than the deductive and the formal. One ought to generate a learning theory from watching the way people learn in solving meaningful problems rather than extrapolate from an artificial situation to a functional one; e.g., in a rehabilitation setting, we are doing time-sample studies on occurrences in speech therapy and physical therapy.

In rehabilitation one uses the team to arrive at decisions and manage a case. Is it possible to use teams in different ways, to formulate programs and curricula in the school setting even with very young children.

In rehabilitation we try to individualize a treatment program, i.e. have the program fit the needs of the patient rather than the patient fit the needs of the program. Is this possible in a school setting, e.g. how about a program coordinator to maintain a relationship with each student?

All of these approaches can have their analogies in studies of the culturally deprived, e.g.: (1) individual difference studies; (2) micro theories or process studies; (3) the psychology of the situation of the underprivileged; (4) the psychology of habilitating the underprivileged.

Other points - The stress on heterorgenicity is excellent. But, it seems to me that the exogenous, endogenous dichotomy is too weak to be such a central parameter. There are other parameters. I have several quarrels with the points made here: Werner and Strauss really had very little to say about learning; Most of their work was in perception rather than learning, per se; Werner, who was perhaps the "developmental psychologist of our time" was surprisingly agenetic in dealing with brain-injured children. What happens to hyperactive behavior over time, etc?; Endogeny is a big waste basket; Studying the teaching of hyperactive children is fine, but what are the basic subsyndromes in the culturally deprived? Werner and Strauss had a certain model of the nervous system which they imposed on their data. It served a very useful purpose, but maybe its time to drop it and just talk about hyperactive kids; the "neglected" children study is weak, but I think distinctions among exogenous, endogenous and neglected are interesting.

The notion of buying time, i.e. stimulus enrichment programs is unclear. It is not well anchored to theories of mental processes and development, e.g. at one point Cruickshank speaks of beginning at six months of age, and at another point he speaks of two years of age. Why six months? Why two years?

I think the literature on models of studies needs more careful explication, e.g. in addition to sensory deprivation models, there are models of mental development - Hebb, Werner, Piaget. Also, more recent theorists talk about cumulative deficit theories. Lauretta Bender used to talk about compensation theories. Rappaport, working with adults, used to talk about deficit and intellectual scatter. In short, Cruickshank doesn't really talk about models; he draws on his vast experience in the field, but this is not the same.

Cruickshank talks about structure (p. 13). I have been bothered by this. How do you define structure?

Cruickshank uses figure ground pathology, perseveration, etc., These concepts borrowed from a psychology of 30 years ago seem much too simple; e.g. see Teuber's analysis of the parameters of perception in his chapter in the Handbook of Neurophysiology.

Relation between language deficit and thinking is put too simply. Many (e.g. Furth) disagree. One way out of the dilemma on the relation between language and thinking is that thinking may be based on non-verbal processes in younger children but gradually shifts to verbal processes in older children, à la Bruner.

D

REACTIONS TO DR. CRUICKSHANK'S PAPER

Dr. Di Michael: Thank you, Dr. Cruickshank, for your thoughtful brief overview of the research literature in special education.

The paper described a number of significant studies with many promising ideas for research into the culturally deprived. The strength of the review lies especially in the treatment of the very young child, the attention to heterogeneity, to the need for multi-sensory stimulation, as well as to concept-formation.

The references to the "enclogenous" and exogenous groups highlights the need for a series of studies on differential education which incorporates such etiological classifications along with other bases for class groupings.

We need well controlled demographic and descriptive studies, through which we can formulate reasonable sub-classifications of the socially and culturally deprived. The descriptions should be based on multi-disciplinary evaluations leading to classifications upon which educational, vocational, social and rehabilitation approaches could be based. The problems of this group are too diverse for us to expect to base our strategic approaches in education on any ready-made classification, such as exogenous and enclogenous types.

Meaningful evaluation of each person is a prerequisite to the formulation of an effective program. This should be made in a multi-disciplinary framework and then all the information would be integrated toward certain goals of personal-social competency, "tailor-made" to the individual's actual and potential specifications.

The need for such an evaluation and plan of action for each individual is particularly advisable in early, or the latest at middle adolescence, when the "life style" begins to take shape in terms of aspirations for the adult life ahead. In my poinion, the special educators are focusing so much attention upon early schooling that the adolescent era is passed over too lightly. We need to concentrate greater effort in exploring the era of life from adolescence to young adulthood, especially with regard to vocational issues.

Similarly, so much attention is directed to intellectual matters and academic attainment that little emphasis is placed on the general area of motivation, interests, and aspirations. For example, many of the more perceptive culturally deprived speak of a feeling of "being trapped" and of a yearning "to master" or "to feel that they are the masters of their own destinies". We should study intensively such strivings and perhaps come up with effective ways of fostering greater inner security.

The analogy between the drastically deprived and the culturally disadvantaged American does not have the ring of truth. We would be better off if we had comparative studies of the different subcultures in our country. Undoubtedly we would find many assets in subcultures upon which to build higher levels of personal competency. Psychological health and maturity is more readily attainable when individuals can accept their backgrounds and cultural differences along with the strengths and realities which make them up. We know this is true of handicapped people who typically undergo a period of adjustment characterized by feelings of "strangeness" and "loneliness". More mature adjustment requires his working through his "mourning", his narrowness of attention to the disability, his dependency feelings. Eventually a reevaluation occurs in which positive valves begin to appear stronger and stronger.

Sophie Bloom: As one looks at the learning problems of special education, two fundamental dangers appear in the analogies. The first danger is that the analogy is drawn between children who have non-reversible handicaps and normal children of disadvantaged backgrounds where the chance of reversibility is highly probable.

The second danger is that using the methods employed by special educators brings with it not only the process but also the context in which the methods were developed. This may add the stigma of being "mentally retarded" to the other derogatory attitudes the culturally disadvantaged already face.

The basic problem of the disadvantaged is acculturation and the schools have been inept in solving it. Such children have learned one set of behaviors well. They must learn another set, and education must provide the bridge.

Research must show us in what way the culture prepares these children differently and what the learning tasks are that the children must master. It would be preferable to work on the problem directly rather than to seek help in analogies in the deaf and the blind.

We must find out what works for the culturally disadvantaged and why it works. What is the underlying process? We can learn a great deal from the systematic way special education has faced the problems of the handicapped. They have used a system based on studying the characteristics of each group. Their rehabilitation measures have always started where the child is and with his strengths. In the instructional process, they then used a sequential development of skills with accompanying reinforcement.

Dr. Cruickshank's paper suggests some of the areas in which sequences need to be established. He also emphasizes the optimum age for their development. We would do well in utilizing the process, employed in special education, of directly attacking the problems of the disadvantaged in a systematic way.

Dr. Leonard Diller: Dr. Cruickshank's assignment was a most difficult one and he has done a good job in trying to take into account many trends in a sprawling field. However, I would like to suggest some other ways of conceptualizing the problem.

Despite surface, behavioral, similarilities between the learning problems and underachievement of the culturally disadvantaged and those organic or "neuratic" origin, important differences in their origin may be found. Failures in culturally deprived groups may be encouraged or at least not overtly discouraged because failures are not dissonant with the wishes of the child, his peers, his family, and his immediate community. This is not the case with disorders due to neural or psychological etiology. This point is critical, not so much in the technology of psychological appraisal or teaching methods, etc., but in the realm of the child and his family recognizing that there is a problem and wanting to do something about it. We would ask such researchable questions as (1) what is a "problem" for a child and the parent; and (2) the nature of help seeking. Another research suggested is how are values transmitted? At what age, etc.?

Similarities and differences between the two fields may also be viewed from several other parameters:

(1) Are attitudes of the non-handicapped towards the handicapped similar to those of the non-culturally deprived towards the deprived, or are they different? There is a literature in the field of the physically handicapped that is relevant here:

a.

a. Yuker, et. al. - Studies on attitudes towards the disabled (ATDP).

b. Siller, J. - Refinements of the ATDP from a psychomatric standpoint.

c. Whiteman and Lukoff - Factorial approaches in attitudes towards blindness and attempts to change these attitudes.

d. Cranofsky, J. - Measurement of attitudes toward the disabled by a projective technique.

e. Richardson, S. - Preferences for different kinds of handicaps among a variety of children.

f. Cowen, E., et. al. - Argued that people who are prejudiced against the blind do poorly on the F Scale.

g. Kogan, N. - Makes a similar point about people who are prejudiced against the aged. (Same point is made by Oberleder, M.)

(2) Cruickshank alludes to the possibility of some culturally deprived groups having "actual insult to the nervous system." This important question needs careful looking into. In general, I know of no serious attempts (outside of Bernard Farber) to view handicapping conditions in general from a social-class standpoint.

(3) From those who have studied the "psychology of the handicapped child" we can borrow approaches to the study of culturally deprived children. Four such approaches are:

a. Individual Differences. This approach, which constitutes the bulk of researches, basically asks the question, do disabled children differ from non-disabled children on any instrument or parameter the examiner specifier? Behind the many criticisms directed at this approach are a number of interesting philosophical premises worth examining, e.g., tests of cerebral palsied children have been criticized on the grounds that they were standardized on intact children. These criticisms have been dealt with in three ways: trying to develop fair tests for CP individuals which do not penalize them for their handicaps; accepting the norms at face value on the grounds that CP's; and, taking an opposite track, that each individual should be regarded on his own merits rather than on a set of arbitrary, external norms.

(2) Micro Theory Approach. Here the disabled are seen as an experiment in nature which could be viewed in terms of an existing general theory. Under this rubric would come studies of the disabled from the standpoint of Adler's "organ inferiority" theory, or body—image from psychoanalytic theory cum Schilder, or studies in space perception in hemiplegia from the standpoint of sensory tonic theory. Perhaps to analogue to this approach in the culturally deprived is the application of theories derived from laboratories of social psychology.

(3) Somatopsychology. From this standpoint the question may be put, is the situation of the disabled similar to the culturally deprived? A number of interesting research questions come to mind, e.g. do adolescents who are relatively mildly disadvantaged have a more difficult time than those who are greatly disadvantaged? How does one sustain hope in the face of massive problems which are relatively unyielding of easy solutions? How does one make it easier for a person to seek help?

(4) Psychology of Rehabilitation. In addition to an analysis of the individual (his make-up and his needs), we need an analysis of the tasks we ask the individual to solve in terms of their psychological demands. We can arrange such tasks in an order of difficulty.

In rehabilitation, because so many problems prove unamenable to correction, we generally try to work with assets and bypass deficits. We need to learn which psychosocial deficits can be remedied and which cannot.

In rehabilitation there is a stress on the functional, pragmatic and inductive rather than the deductive and the formal. One ought to generate a learning theory from watching the way people learn in solving meaningful problems rather than extrapolate from an artificial situation to a functional one.

In rehabilitation we try to individualize a treatment program, i.e., have the treatment fit the needs of the patient rather than the patient fit the needs of the program. Is this possible in a school setting, e.g., how about a program coordinator to maintain a relationship with each student?

Dr. Joseph Wortis: I think that to dichotomize retarded disadvantaged children into "exogenous" and "enologenous" types is a questionable procedure. Actually, I think, poor children with low I.Q.'s fall into at least four distinct groups:

1) Essentially normal children who are educationally backward
2) Essentially normal children with innate intellectual limitations
3) Biologically defective children with diagnosable disease but with clinical and developmental indications of diffuse and minimal brain damage or defect.
4) Biologically defective children with diagnosable brain injury or defect or other medical disease.

I think by far the greatest number of poor children with low I.Q.'s fall in category I and relatively few in catefory 4. Futhermore I cannot agree that the "brain injured" group comprise a homogeneous syndrome, since it encompasses aphasics, focal lesions, cerebral palsy, cortical and subcortical lesions, all with different symptoms and learning problems.

Similarly, I find it implausible to equate brain damage with educational neglect and do not believe the syndromes are similar. I agree that corrective education for social neglect must start in infancy, and that later corrections seldom compensate fully for the loss. I share the emphasis on the importance of early educational stimulation, especially in the language area.

Finally, most of the specific research suggestions listed at the end of Dr. Cruickshank's paper seem very much worth pursuing.

Dr. Bernard Kutner: By characterizing the poor as a group set aside from the rest of the population we may be leading ourselves up a blind alley. We need to precisely define who the culturally disadvantaged children are and then researchers and educators could begin an analysis of this group.

It seems presumptuous to assume that culturally deprived people are handicapped to begin with. If there is indeed a disability its nature has to be precisely determined. What are the "inputs" that we claim to be disadvantageous?

It seems equally questionable to assume that, since slum families have limited vocabularies they are somehow exposed to some sort of sensory deprivation. What constitutes their specific deprivation? The analogy between sensory deprivation experiments and what we know about the homelife of the disadvantaged seems to be on shakey grounds.

Dr. Abraham Tannenbaum: The strategies for closing the educational gap between the advantaged and disadvantaged are polarized around two basically different points of view. One emphasizes the inadequacies of ghetto schools and their staffs while the other focuses on the inadequacies of the target population.

Adherents to the first set of orientations argue that the schools know how to education the underprivileged adequately but fall far short of expectation because of bureaucratic inertia in a smug, tenured administrative complex, substandard learning conditions, instructional materials, and professional resources; indifference and hostility toward pupils from minority groups; and a false belief that such children cannot achieve any better than they do. These critics contend that slum children do not suffer from learning and behavioral deficits comparable to handicapped pupils traditionally assigned to Special Education programs and they could compete with children from "the other side of the tracks" if given half a chance. Instead of potentially stigmatizing compensatory programs, they need school atmospheres that inspire learning, created by educators who want to teach underprivileged children, who believe they can learn, and know how to get the job done.

The second approach takes children as they come, regardless of their social background, and deals with the prima faci symptoms of human deviance. Here the nature of the deficit, not its origins, is emphasized and the individual is directed toward learning new behaviors to replace the old. Causality is looked into only insofar as it can suggest the preferred instructional treatment from among various alternatives. The teacher does not attempt to be a social reformer and, as such, he relies heavily on differential diagnosis of cognitive and behavioral functioning and tailors his intervention to the direlict profiles. He applies a prescription to accomodate individual differences in school performance under the ground rules of the teaching-learning act. Those who believe in this alternative might naturally look to the field of Special Education as a prime source of programmatic ideas and research. However, as Dr. Cruickshank has cautioned, Special Education at present can offer only some promising hypotheses based on some not-yet evaluated work with the mentally retarded, the emotionally disturbed, the blind, the deaf, and the neurologically impaired.

Just as Dr. Cruickshank makes the vital point that we cannot assume homogeneity among the mentally retarded, it is no less naive to lump together the disadvantaged as they were homogeneous. Studies in intra-class differences, as well as variations between caste and class, are long overdue. Some of these sub-group differences may suggest the kinds of differentiated social rehabilitation programs needed at home, at school, and in the community, just as the endogenous and exogeneous typologies of mental retardation point to dissimilar educational treatments for slow learners.

We have heard references to investigations showing that post-natal experiential impoverishment in the home can have a permanent impairing affect on the intellective growth of children. Perhaps compensatory programs for the underprivileged can never be successful unless schools reach directly into the home and make sure that the child receives optimum succorant care and cognitive stimulation throughout his preschool years.

Cruickshank may be oversimplifying cause-and-effect relationships in suggesting that culturally deprived children may suffer a central nervous system insult. One might argue that the educational prescription for their symptoms is the same, regardless of the actual presense or absence of brain injury. However, to label an underprivileged child as brain injured because he acts as if he were does not add to an understanding of his development history unless one can argue rationally that social deprivation somehow causes neurological impairment.

The action therapy approach (as opposed to an insight orientation), which might characterize the special education teacher's stock-in-trade, is best illustrated in Cruickshank's allusion to the Maryland Educational Research Project. Although role playing with simulated social problems requires exploration into causes and consequences, the emphasis is on learning new behaviors, new attitudes, and new ways of acquiring adaptive habits. To this extent, the teacher serves as a therapist while preserving his instructional role.

Cruickshank's list of researchable problem areas is a valuable survey of major unfinished business in the field for the benefit of the uninitiated. His field should long ago have been called upon to provide the kind of help his paper begins to offer.

Dr. Edward Zigler: I feel that there is insufficient evidence as yet regarding the question of organic damage in the culturally deprived child. Consequently, this and related issues should be kept open. The type of remediation needed depends on whether we are dealing with learned behavior or behavior based on neurological disorders. We must refine our diagnostic procedures in the broadest sense. I agree with Dr. Kutner that we cannot uncritically accept the analogy between sensory deprivation research findings and the problems of the disadvantaged. Surface behavior may be similar, but the origin must be considered. The genesis of deviant patterns of behavior can be very different. Hence, the same techniques cannot be used for both. A psychological diagnosis is needed before you can establish the diagnosis at an educational level.

Although I.Q., for example, must be taken seriously, disadvantaged children do not operate at the level of which the scores suggest they are capable. Similarly, the results of formal measures of perception, etc. may be reversed in the practical functional situations in which these children find themselves. Before we can understand the meaning of the disadvantaged child's behavior, an analysis must be done of the nature of the task we want mastered. The question must be asked-- how much of the task is based upon cognitive demands which limit function and which aspects of it may be facilitated by life experiences?

Based on my work with retardates, I suggest that we should view the disadvantaged child's behavior as an interaction among cognitive factors, achievement, and his motivational system.

I. Cognitive Factors: There are certain formal features upon which cognitive processes are based. For instance we must inquire into the nature of the child's retrieval system. If the formal cognitive system is limited, his development is less plastic, etc.

II. Achievement: Cognitive factors are independent of achievement although eventually become tied to achievement. We must be able to specify particular achievement deficits. Achievement implies content, information pools. We need to design instructional methods which will not only increase information but will also improve cognitive structures. We should try to get these children to know the practical meaning of things.

III. Motivational System. When the child says, "I don't know," there may be a variety of reasons. (a) He may not have the retrieval system capable of storing it, as is found in the severely mentally retarded; (b) He may not have previously heard the word, hence, the involvement of the achievement factor; (c) He may "know" but not have the motivation to perform. When a child says "I don't know" (especially a culturally deprived younster) it is sometimes because interaction with an adult may be anxiety producing. Thus there are such factors which can "wash out" the cognitive and achievement aspects of a behavior.

I feel that the problems of the disadvantaged child is not in the cognitive structures. Teaching should be directed to motivational attitudes, not the abc's.

In some work in New Haven it was found that twelve children "didn't know" their names. When the experimenter explained it was necessary for him to know the child's name in order to obtain juice for the child, eleven of the twelve revealed their names. So, you see, much of this problem is motivational. We also found in our work with nursery school and Head Start children in New Haven that I.Q. changes were produced by motivational, rather than cognitive-achievement, factors.

We must isolate the particular factors which are motivational and try to discover their genesis. From this New Haven work, we have isolated the following three factors which seem important:

1. Social Reinforcement. This is the key to the socialization process. Social interaction with adults early in life seems important. How do we shape up the usual child over the course of time? We need studies of socialization dealing with developmental phenomena and mediational structures in the child. We should go into middle class and lower class homes to see what the adult-child interactions are. In a seven-year follow-up study of the institutional effects on familial retarded children with high deprivation, it was found that the institutional effects on the child were determined by the quality of interactions prior to institutionalization. What are the effects of socially deprivation. I can isolate two factors:

a) A typically high positive reaction tendency. This is a result of not enough social reinforcement in the child's past to help him make the shift from dependence to independence. We can either shake dependency or try to prevent depending to begin with. We need research to determine why the positive reaction tendency is developed by the children. Must the family provide this social reinforcement or can others? Does the family have a lack of awareness that this is needed?

b) A typically low positive reaction tendency or a negative reaction tendency. The child can be motivated towards social reinforcement, but may be reluctant or fearful to get same because adults in the past were so punitive. An anxiety avoidance mechanism can be more easily reversed. You show the child he won't get hurt and that something good will happen. Teachers are be-fuddled because they don't understand the child. If they knew the negative reaction tendency were present they would appreciate and concentrate on this motivational hump first, rather than on the abc's.

Thus social deprivation can be viewed either as the absence of something or the presence of something deleterious.

2. Reinforcer-Hierarchy Concepts. At an empirical level, at least, there is for every child or adult such a hierarchy. Some factors are more motivating than others. The deprived child may have a different order of priority than the middle-class child. Kuno Beller and Jack Wirtz have been working in this area.

Reinforcement dispensed by society depends on the dispenser, not the individual. (e.g., Being right for right's sake is only effective for the middle class.) The pairing of social reinforcers and natural reinforcers has not taken place among the disadvantaged.

Research is needed to determine the path of normative development of reinforcement hierarchies. We need to discover how these charge over time and how they are related to learning and cognition.

Two possibilities may account for the motivational problems presented by the deprived child: (1) the pairing system of reinforcers has been inappropriate, or (2) there is a developmental log (e.g., being right for right's sake requires a higher level motivational system where the child is able to praise himself. This is tied more to I.Q. and M.A. than to deprivation per se.) If cognitive slowness is the issue, we would want to undertake different remedial measures. A higher level motivational system is necessary before a child is ready to assume control over himself.

3. Expectancy of Reinforcement. What you expect will in turn influence what you produce. The socially deprived expect little from themselves. Whereas the teacher might view success as a score of 100%, the deprived child may feel that 5% is satisfactory.

Sonia Osler at Johns Hopkins has been working in this area. In a study where the retarded performed in over 150-200 trials in a simple two-choice discrimination task, they still were not learning. This phenomenon leads some people in mental retardation to conclude that retardates have a very poor cognitive system (as is now being said of the culturally deprived.) When the reinforcement schedule was restructured from one in which 50% of correct trials were rewarded to one in which wrong responses were penalized, the subjects learned the correct discrimination in 2 or 3 trials. Clearly this is a motivational problem.

The problem now is to put this cognitive-achievement-motivational trichotomy back together. Motivational phenomenon feed back into the cognitive area. Probably, the feedback is interactive for all three factors.

4. Cognitive Style. If we are ever to understand fully the specific features of disadvantaged children's functioning, we need to know more than just their learning curves. We must investigate their mediational processes that cut across their various performances. An aspect of cognitive style upon which we should focus our attention is that of

inner vs. outer directedness.

Outer directedness means looking to the environment or to others for solutions. Normally, directedness shifts from outer to inner with maturation. There is a developmental component to this. The mentally retarded child (and in my hunch the culturally deprived) remain outer-directed if the other system fails to develop. Experiments should be set up so that the child is forced to become inner-directed. In the extreme, outer-directedness may lead to hyperactivity and inattentiveness because of extreme focus on external cues. Perhaps the outer-directedness of the disadvantaged is a function of failure experiences. The importance of this factor is undersensed by the fact that spontaneity, creativity, etc. are inner-directed processes.

I feel that much of the psychosocial phenomena attributed to socially deprived children can be accounted for on the basis of these and other motivational factors as well as the unique features of their cognitive styles.

Dr. Burton Blatt: As Dr. Cruickshank mentioned, it is logical to look to the field of general education for guidelines in designing research with children who are called culturally disadvantaged. It would be a gross distortion to imply that interest in the relationship between mental retardation and social class (and cultural deprivation) is of recent origin. Such an interest was very early guaranteed by the inescapable fact that the largest subgroup of the retarded was found among the poor. I refer to the group which has variously been called the garden-variety or subcultural, or cultural-familial, or familial defective individual. One can view the problems of mental retardation and cultural deprivation as overlapping--from the standpoints of etiology, syndromes, treatments, preventions and ameliorations, as well as regards the preparation of professional workers to deal with them. However, as Dr. Cruickshank pointed out, there are sufficient distinctions not to permit these terms (mental retardation and cultural deprivation) to be used synonymously or all of the problems obtaining from these conditions to be treated collectively.

Just as experimental psychology was the progenitor of clinical psychology, which more or less sponsored respectibility for special education, I believe that those who are now concerned with the education of disadvantaged children will look to special education as sponsors for its candidacy for membership in the various academic and scientific professional establishments.

I agree with Dr. Cruickshank that we should not look to Special Education as the only model and the only sources for guidelines and advice in the area of the disadvantaged. We need collaborations with clinical psychology, developmental psychology, sociology, anthropology, psycholinguistics, and several other fields.

In discussing the work of Werner and Strauss, Dr. Cruickshank concludes that what is accomplished educationally for exogenous children is inappropriate for endogenous children and vice versa. Therefore, he concludes that these two groups of children cannot be adequately educated in the same classroom. I do not agree. One might say that if special education classes were better we might be able to educate brain-injured and non-brain-injured retarded children in the same special classes. One of the ways of making such classes better would be in restructuring these classes (and in the preparation of teachers) toward more diagnostic approaches to teaching rather than normative ones. This we discussed in a recent paper (Blatt and Garfunkel in the Journal of Education of the Mentally Retarded, 1966).

I agree with Dr. Cruickshank that we need some careful research concerning when children must be placed in preventive and therapeutic programs, how long they must remain in such programs, and what programs are most apt to obtain the desired objectives. All of the aforementioned I would call the search for a "Therapeutic Index." Unfortunately, these kinds of studies are least satisfactory if one is interested in research on deprivation. The kinds of studies that Dr. Cruickshank proposes (and the kinds I have been involved in) only indirectly study deprivation. Our legal and moral codes, as well as our own good sense and responsibility, prevent us from directly studying deprivation. To study deprivation adequately, one would have to deprive a group (or groups) of children systematically and study the effects of this deprivation -- and, possibly, our attempts to ameliorate such deprivation. Since we cannot do this, we study stimulation and assume that those children who are not stimulated are being deprived. We study deprivation by indirection. From my own experience, I recommend that the following research design problems be carefully considered:

a. Randomization versus matching of subjects;
b. Generalizability that one can claim for his data as a result of sampling procedures and knowledge of the universe sampled from;
c. The size of the N
d. The attrition of the N and how attrition is dealth with both in the program as well as in the data analysis;
e. The implementation and adherance to "blinds" in all of the testing programs of the research;
f. The description of the intervention and its possibilities for replication.

Few studies with the deprived (or in the broad field of special education) have been completed that meet minimum criteria involving sampling procedures, control of research bias, subject attrition, and clearly stated hypotheses and research programs designed to test them.

Dr. Eunice S. Newton: Before summarizing what I feel are the main issues in Dr. Cruickshank's paper, I would like to share with you some interesting observations made at Howard University regarding differences in academic progress and predictability between our male and female native-born, American Negro undergraduates. These findings are relevant to our discussion, since they lend support to Dr. Cruickshank's points pertaining to the inadvisability of considering the culturally disadvantaged as a homogeneous group. As will be seen, the Howard University data suggests that, at least as far as American Negroes are concerned, we must treat males and females as separate groups.

The fact that female students in the College of Liberal Arts graduate in larger percentages than the males and are dismissed because of academic failure in smaller percentages has been noted over a period of years at Howard University. It has been assumed, however, that the female students were "smarter" than the males since their high school and college GPA's were significantly higher than the male student's, and that the dismissal rate for the males was related to a constellation of financial problems which beset them due to their sex.

Within recent years at Howard several longitudinal studies in depth of the entering classes in 1959, 1960, and 1965 have presented data which reveal differences between Howard's male and female students in intellective, sociological, and achievement factors which vary markedly from other collegiate populations which are not predominantly Negro.

Mrs. Mary L. Hunt has recently concluded a comprehensive longitudinal study of 980 new entrants in the College in September 1960. The basic intellectural variable was a measure of scholastic aptitude, the SCAT, sociological variables were sex, high school class size, and geographic origin; achievement variables were rank in high school graduating class, remedial status at college entrance, first semester GPA, and first semester academic probation. Relationships among these variables were studied as well as their relation to graduation success at Howard. Some of the major findings can be summarized as follows:

> A statistically significant relationship between high school graduating class size and Howard graduation exists for women students but not for men students.
>
> A statistically significant relationship exists between geographic origin and academic status of male students, but not for female students.
>
> Men students score higher than women students on the SCAT but do not earn GPA's at Howard commensurate with their potential. The men's mean scores on the Graduate Record Examinations exceed the women's also.
>
> Women students rank higher in graduating high school classes but do not score as well as men on the SCAT.
>
> Although the highest Howard graduation rate for men was among males from the South Atlantic, these males had the lowest decile ratings on the SCAT.
>
> Southern males, on the whole, are more likely to graduate from Howard than Northern or D.C. males.
>
> Whereas 43.4 percent of the women graduate within 10 semesters and 5 summers, only 29.4 of the men did. Similarly, only 16.8 percent of the men graduated within 8 semesters and 3 summers, whereas 29.8 percent of the females did.

In general, the pre-admission variables of SCAT score, high school class rank, and "remedial status" are not equally predictive for men and women at Howard. Women generally exceed expectations in the lower ranges of the variables and men fall below expectations in the upper levels of the variables.

All these findings point to the importance of non-intellective factors in academic achievement. Research is needed into such variables as self-concept and personal Weltanschauung, level of aspiration, motivation, study habit and skills, socio-economic level, total pre-college schooling, pre-college community zeitgeist, and total pre-college school experience.

Returning now to Dr. Cruickshank's paper, I believe the following to be the foci of his position:

(1) Special education research may provide guidelines which are applicable to the educational problems of the disadvantaged child.

(2) Rejection of the traditional concept of the psychological homogeneity of culturally disadvantaged children and an acceptance of a theory of their psychological heterogeneity will facilitate the development of appropriate educational programs for them.

(3) Even now as we may have evidence that mental retardation may be exogenous as well as endogenous in etiology, so may the culturally disadvantaged child's multihandicaps be exogenous in origin.

(4) The lack of stimulation in very early childhood may cause a type of psychopathology which may be basic to emotional apathy and intellectual atrophy in later childhood. Early stimulant deprivation may cause some degree of central nervous system insult.

(5) Infant and nursery school programs which begin not later than six months of age may do much to compensate for stimulant deprivation in the home environs. Such infant and nursery education should provide adult-child contacts with much social and individual stimulation involving all possible sensory avenues through a variety of experiences.

(6) It is possible to elicit in the infant and nursery years positive responses in culturally disadvantaged children through appropriate educational programs even though the socially and economically deprived child may demonstrate the same psychopathological characteristics of the brain-injured child.

(7) Simulations which contribute to the modification of child behavior through changes in attitudes, and remedial reading instruction may prove to be especially fruitful cores of educational programs for the culturally disadvantaged child.

(8) From experiences in language teaching to the deaf, innovative approaches may be applied in teaching language to the culturally disadvantaged. A simplified form of our language ✓which utilizes few transformations may be profitable with the latter group, also.

(9)✓The critical period for language acquisition, which peaks at two to four years and declines steadily after, should be capitalized on in the education of the culturally disadvantaged child. Language is the essential tool in the categorization of reality and in the expansion of concepts.

(10) The teacher of exceptional children must possess both specific and comprehensive competencies and understandings, for he is the most significant influence upon the learning of children.

(11) Other significant issues which are pertinent to the study of culturally disadvantaged children are: incidental learning and rigidity as a factor in learning, the effects of emotional disturbances on cognitive behavior, the relationship of a certain set of attitudes to child behavior, the relative roles of personality and intelligence in social acceptibility, the place of programmed instruction in the education of culturally disadvantaged children, and the learning characteristics of groups as against individual characteristics.